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AUTHOR Jackson, Coleen O'Rourke
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ABSTRACT

A pilot project evaluated the use of a microcomputer database system to maintain hearing screening, evaluation, and followup records in a school for physically, emotionally, or educationally handicapped children (6 months-18 years). Using a universal database management system for a microcomputer, a program was designed which would allow for easy storage and flexible retrieval of the data. In total, 73 children were screened during the year and the results stored. Data entry and retrieval were performed on a biweekly basis. It was concluded that the system was both efficient and convenient, despite some problems related to the limitations of the database as originally designed for the pilot project. The system's flexibility was emphasized, allowing adaptability for service providers as well as for information required by state or federal regulations. (CL)

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USE OF MICROCOMPUTERS

FOR

SCHOOL HEARING SCREENING AND EVALUATION RECORDS

Colleen O'Rourke Jackson, Ph.D.

Department of Speech
New Mexico State University
Las Cruces, New Mexico

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The American Speech-Language-Hearing Association
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RATIONALE

Generally all school systems utilize some form of a hearing screening program to identify students with hearing deficits and then implement management and special educational programs for these students. Often the responsibility for the program is not assigned to a single professional (eg. the school's audiologist) but is implemented by numerous individuals; school nurses, speech-language pathologists, special education personnel, etc. Without clear cut roles and responsibilities for evaluation and follow-up in a program, it is easy for the hearing impaired student to become "lost" in the evaluation and management processes.

A common problem in school hearing screening programs is the lack of an efficient system for maintaining hearing screening records. The subsequent shuffling of papers and forms often results in delays in obtaining follow-up evaluations and referrals. Such difficulties preclude an efficient and effective service delivery system for the school or district.

The objective of this project was to implement the use of a microcomputer data base system for maintenance of hearing screening, evaluation, and follow-up records in a school setting.

PROGRAM DESCRIPTION

PROGRAM: The Data Factory (by William Passauer, MicroLab, 1982 v. 5.0)

EQUIPMENT NEEDED: Apple computer (48K RAM)
One or two disk drives
Monitor
Printer

The Data Factory is one of many data base systems available for microcomputers which allow for entry, storage and retrieval of information. Such systems can be used to store and retrieve hearing screening and evaluation records thus eliminating or minimizing many of the difficulties encountered in hearing screening programs. A powerful feature of The Data Factory is its ability to sort and retrieve information in numerous ways. The manner in which the information is retrieved and printed can be controlled by the user based on the needs of the school or district.

Examples: Single level sort

- List in alphabetical order, all children who have been screened.
- List by room number, all children needing teacher conferences.
- List by date of retest, all children needing referral to physician.

Examples: Multi-level sorts

- List by room number, in alphabetical order, all children failing the screening.
- List by date of screening and room number, all children needing retest.

PROCEDURES FOR PILOT PROJECT

SCHOOL

Zia School and Therapy Center in Alamagordo, New Mexico was selected as the pilot school for this project in conjunction with a contract for hearing screening and evaluation services for the 1982-83 school year.

POPULATION

The school enrolls approximately 75 children ages 6 months to 18 years, all of whom are physically, emotionally, or educationally handicapped.

DATA SELECTION

The type of identifying information to be stored on each child as well as test results and recommendations were established based on the needs and suggestions of the school director and staff (Fig. 1). Using a universal data base management system (The Data Factory) for the Apple II microcomputer, a program was designed which would allow for easy storage and flexible retrieval of the data.

TIME PERIOD

Once the data base was established, hearing screening and evaluation began and continued from November 1982 through April 1983.

Figure 1. ORIGINAL DATA BASE FOR ZIA SCHOOL AND THERAPY CENTER HEARING SCREENING

NAME _____

ROOM NUMBER ____

DATE OF SCREENING _____

RESULTS OF SCREENING (PASS/FAIL) ____

DATE OF RETEST _____

* = Retest needed, but not yet done

TYPE OF HEARING LOSS ____

0 = None (Normal Hearing)
1 = Conductive
2 = Sensorineural
3 = Mixed
4 = Unknown

AMOUNT OF HEARING LOSS ____

0 = None (Normal Hearing)
1 = Mild
2 = Moderate
3 = Moderately-Severe
4 = Severe
5 = Profound
6 = Unknown

RECOMMENDATIONS ____

0 = None
1 = Retest
2 = See physician then retest
3 = Teacher awareness of problem
4 = See physician, retest, teacher awareness
5 = Retest and teacher awareness
6 = Other

RESULTS

A total of 73 children were screened during the year and the results stored using The Data Factory. Data entry and retrieval was done on a biweekly basis allowing continual update on lists such as: children failing hearing screening, children needing medical referral, teacher contacts needed to be made, etc. Figures 2 and 3 are samples of such lists.

Several problem areas were identified with the data base as originally designed for this project. Of the 73 children screened, 31 failed. Of the 31 failures, 20 (or 65%) needed more than 1 re-evaluation before reliable thresholds could be obtained. The data base, however, allowed for the recording of only a single retest date. Twelve children (16%) required recommendations that were not listed in the data base thus necessitating use of the OTHER category. Three children had unilateral losses however the data base did not separate right from left ear test results.

DISCUSSION

Utilization of a microcomputer data base system for storage and retrieval of hearing screening and evaluation results in a school system during a one year period has demonstrated that the system is both efficient and convenient. All student records are maintained together and information concerning those students needing retesting, referrals, etc. is readily available. Although some problems related to the limitations of the data base as originally designed for the pilot project were discovered during its implementation, the data base can be easily modified to solve these problems.

The system has sufficient flexibility that it can be modified to meet the needs of nearly any school or district. Alternative or additional information could easily be stored and retrieved, thus recording not only information needed for direct services, but also information which might be required by State or Federal regulations.

Figure 2. SAMPLE PRINT-OUT OF DATA SORTED BY ROOM NUMBER

ZIA HEARING TESTING 2/1/83

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ROOM	NAME	DATE OF SCREEN	PASS/ FAIL	DATE OF RETEST	TYPE OF LOSS	AMOUNT OF LOSS	RECOMMEND
1	A.A.	1/18/83	P		0	0	0
1	B.M.	12/14/82	P		0	0	0
1	K.R.	12/14/82	F	1/25/83	4	6	1
1	R.S.	12/14/82	P		0	0	0
1	L.S.	12/7/82	P		0	0	0
1	J.S.	12/14/82	P		0	0	0
1	A.T.	12/7/82	P		0	0	0
1	J.T.	12/14/82	P		0	0	0
2	J.C	1/18/83	F	*	4	6	5
2	C.E.	12/14/82	F	1/18/83	0	0	6
2	J.G.	1/18/83	F	2/1/83	0	0	0
2	R.K.	1/18/83	F	*	4	6	5
2	J.P.	1/18/83	P		0	0	0
2	O.P.	1/18/83	F	2/1/83	4	1	4
2	A.R.	1/18/83	P		0	0	0

Figure 3. SAMPLE PRINT-OUT OF CHILDREN NEEDING MEDICAL REFERRAL AS SORTED BY DATE OF SCREENING

ZIA HEARING TESTING 2/22/83

RECOMMEND	DATE OF SCREEN	PASS/ FAIL	DATE OF RETEST	TYPE OF LOSS	AMOUNT OF LOSS	NAME	ROOM
2	12/7/82	F	1/25/83	1	1	D.F.	9
2	12/14/82	F	2/22/83	1	1	J.C.	6
2	12/14/82	F	2/22/83	4	1	A.T.	6
2	1/18/83	F	2/15/83	4	6	J.K.	4
2	1/18/83	F	2/22/83	1	1	L.C.	5
2	1/18/83	F	2/15/83	1	2	M.P.	5
2	1/25/83	F	2/22/83	4	6	K.V.	5
2	1/25/83	F	2/15/83	1	1	A.Y.	2
2	2/15/83	F	2/22/83	4	6	D.B.	5

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